



MDC Resource Science

Black bass and crappie use of installed habitat structures in Table Rock Lake, Missouri

Science Notes



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Summary

Reservoirs are important resources utilized by thousands of freshwater anglers annually, but as these reservoirs age, their physical habitat deteriorates and fish habitat quality is reduced. In 2007, a large scale habitat improvement project began on Table Rock Lake, Missouri with the goal of supplementing existing fish habitat in this large reservoir. Over 2,000 habitat structures composed of cedar, pine, hardwoods, stumps, and rocks were installed between 2007 and 2013. SCUBA surveys were used to evaluate black bass and crappie use of the installed habitat structures to determine if use of structures varied among fish species, fish size, season, and structure type. Black bass were observed utilizing all structure types during our evaluation, and appeared to utilize hardwoods most. Covariates such as water depth and visibility at the structure confounded our analysis of black bass use, limiting our ability to clearly document changes in usage. Crappie utilized all structure types except rock, but more crappie were observed on cedar structures than any other structure type. In Table Rock Lake, black bass were attracted to all structure types and crappie were attracted to all structure types except rock; therefore, we recommend that future habitat installation projects utilize the most cost-effective habitat available. Since fish use is similar across nearly all habitat types, other factors such as cost and installation times should be considered when planning habitat enhancement projects on large reservoirs.

Goal: To determine what habitat types are used most by bass and crappie in Table Rock Lake.

- Ten of each structure type were selected at random (50 structures total) and surveyed three times between June 15 and September 15 of 2010 and 2011 (300 surveys total).
- Two instantaneous counts were made at each site, by two divers, after a time period of three and five minutes.
- Other factors were measured during surveys such as depth, water clarity (from surface and at structure), DO, structure orientation, temperature, and weather conditions.

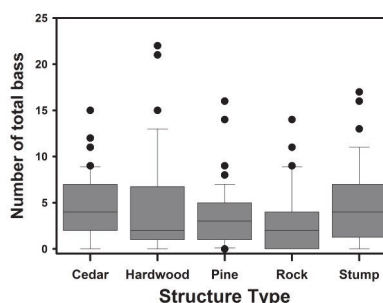


Figure 1. Boxplots of the number of total black bass observed during 2010 and 2011.

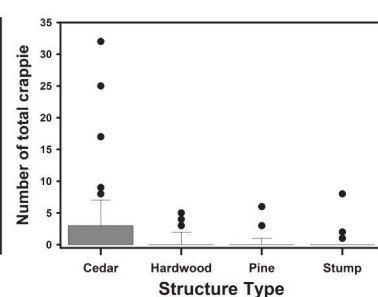


Figure 2. Boxplots of the number of total crappie observed during 2010 and 2011.

Results

- All structure types were utilized by black bass (Figure 1).
- Cedar tree structures were utilized most by crappie species (Figure 2).
- All structure types were utilized by bass or crappie in Table Rock Lake, therefore, costs of each habitat type should be a major consideration when planning habitat installations (Table 1).

Project Details

- Study area was limited to the clearer, “main lake” sections of the lake.
- Structure types included: hardwood tops, cedar trees, pine trees, rock piles, and stump fields.

For information on Table Rock Lake structure locations,



Table 1: Installation costs of each type of habitat surveyed

Habitat Structure Type	Supply costs	Installation Time (hours × number of staff)	MDC staff hourly rate avg. (\$/hr)	Contractor Costs (\$/hr)	Total cost per structure
Cedar	50.00	2 × 2	15.00	78.00	\$266.00
Pine	50.00	1.5 × 5	15.00	NA	\$162.50
Hardwood	50.00	2 × 2	15.00	78.00	\$266.00
Stump	0	2 × 1	15.00	656.00	\$1,342.00
Rock	0	2.5 × 1	15.00	656.00	\$1,677.50

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